Amendments to the Claims:

1. (Previously Presented) A sigma-delta converter that includes a feedback loop and operates over a predetermined bandwidth, the sigma-delta converter comprising:

a forward path including:

a summer for generating a first signal;

a filter for averaging the first signal to produce a second signal;

a comparator for comparing the second signal to a reference level and producing a third signal based on the comparison; and

a storage device, coupled to an output of the comparator, for storing the third signal for a delay period and outputting the third signal responsive to a clock signal, the storage device comprising a D flip-flop that outputs the third signal responsive to the clock signal;

a feedback path providing a representation of the third signal to a negative input of the summer, wherein the summer generates the first signal by subtracting the representation of the third signal from an input signal applied to a positive input of the summer; and

at least one instability generator, positioned in the forward path, for generating an instability in the feedback loop at a frequency outside the predetermined bandwidth to substantially improve signal-to-noise performance of the sigma-delta converter within the predetermined bandwidth for amplitudes of the input signal that are substantially near a low end of a dynamic range of the sigma-delta converter, the at least one instability generator including a D flip-flop coupled to an output of the storage device to produce a time-delayed representation of the third signal responsive to the clock signal.

2. and 3. (Canceled)

4. (Previously Presented) The sigma-delta converter of claim 1, wherein sigma-delta converter provides a bandpass frequency response and wherein the storage device comprises:

a first D flip-flop coupled to an output of the comparator and producing an intermediate signal at a non-inverting output responsive to the clock signal; and

a second D flip-flop coupled to the non-inverting output of the first D flip-flop and outputting the third signal at an inverting output responsive to the clock signal.

5. (Original) The sigma-delta converter of claim 4, wherein the at least one instability generator comprises at least a third D flip-flop positioned in the forward path and coupled to the inverting output of the second D flip-flop to produce a time-delayed representation of the third signal responsive to the clock signal.

6. (Previously Presented) A sigma-delta converter that includes a feedback loop and operates over a predetermined bandwidth, the sigma-delta converter comprising:

a forward path including:

a summer for generating a first signal;

a filter for averaging the first signal to produce a second signal; and

a comparator for comparing the second signal to a reference level and producing a third signal based on the comparison;

a feedback path providing a representation of the third signal to a negative input of the summer, wherein the summer generates the first signal by subtracting the representation of the third signal from an input signal applied to a positive input of the summer; and

at least one instability generator, positioned in at least one of the forward path and the feedback path, for generating an instability in the feedback loop at a frequency outside the predetermined bandwidth to substantially improve signal-to-noise performance of the sigma-delta converter within the predetermined bandwidth for amplitudes of the input signal that are substantially near a low end of a dynamic range of the sigma-delta converter,

wherein the at least one instability generator comprises:

a first D flip-flop responsive to a first edge of a clock signal; and

a second D flip-flop coupled to an output of the first D flip-flop and responsive to a second edge of the clock signal.

7. (Original) The sigma-delta converter of claim 1, wherein the at least one instability generator comprises a capacitor.

8. (Canceled)

9. (Previously Presented) A sigma-delta converter that includes a feedback loop and operates over a predetermined bandwidth, the sigma-delta converter comprising:

a forward path including:

a summer for generating a first signal;

a second summer for receiving a signal for conversion from a signal source and producing an intermediate signal;

a filter for averaging the first signal to produce a second signal;

a second filter, coupled between the summer and the second summer, for averaging the intermediate signal to produce the input signal; and

a comparator for comparing the second signal to a reference level and producing a third signal based on the comparison;

a feedback path providing a representation of the third signal to a negative input of the summer, wherein the summer generates the first signal by subtracting the representation of the third signal from an input signal applied to a positive input of the summer;

a second feedback path providing the representation of the third signal to a negative input of the second summer, wherein the second summer produces the intermediate signal by subtracting the representation of the third signal from the signal for conversion; and

at least one instability generator, positioned in at least one of the forward path and the feedback path, for generating an instability in the feedback loop at a frequency outside the predetermined bandwidth to substantially improve signal-to-noise performance of the sigma--

delta converter within the predetermined bandwidth for amplitudes of the input signal that are substantially near a low end of a dynamic range of the sigma-delta converter,

wherein an instability generator of the at least one instability generator is positioned in the second feedback path.

10. (Previously Presented) An improved sigma-delta converter of the type having at least one feedback loop and operating over a predetermined bandwidth, the at least one feedback loop including a forward path and a feedback path, wherein the improvement comprises:

at least one instability generator, positioned in at least one of the forward path and the feedback path, for generating an instability in the at least one feedback loop at a frequency outside the predetermined bandwidth to substantially improve signal-to-noise performance of the sigma-delta converter within the predetermined bandwidth for amplitudes of an input signal that are substantially near a low end of a dynamic range of the sigma-delta converter, the at least one instability generator including a first D flip-flop responsive to a first edge of a clock signal, and a second D flip-flop coupled to an output of the first D flip-flop and responsive to a second edge of the clock signal.

11. (Currently Amended) A communication device comprising:

(a) an antenna for receiving a radio signal bearing information;

(b) a receiver, coupled to the antenna, for down-converting and demodulating the radio signal, the receiver including a sigma-delta converter that includes a feedback loop and operates over a predetermined bandwidth, the sigma-delta converter comprising:

a forward path including:

a summer for generating a first signal;

a filter for averaging the first signal to produce a second signal;

a comparator for comparing the second signal to a reference level and producing a third signal based on the comparison; and

a storage device for storing the third signal for a delay period and outputting the third signal responsive to a clock signal to produce a clocked output signal, wherein the storage device comprises a D flip-flop that produces the clocked output signal responsive to the clock signal ~~and wherein the at least one instability generator comprises at least one D flip-flop positioned in the forward path of the feedback loop and coupled to an output of the storage device to produce a time-delayed representation of the clocked output signal responsive to the clock signal~~;

a feedback path providing a representation of the clocked output signal to a negative input of the summer, wherein the summer generates the first signal by subtracting the representation of the clocked output signal from a representation of the radio signal applied to a positive input of the summer; and

at least one instability generator, positioned in at least one of the forward path and the feedback path, for generating an instability in the feedback loop at a frequency outside the predetermined bandwidth to substantially improve signal-to-noise performance of the sigma-delta converter within the predetermined bandwidth for amplitudes of the input signal that are substantially near a low end of a dynamic range of the sigma-delta converter, and wherein the at least one instability generator comprises at least one D flip-flop positioned in the forward path of the feedback loop and coupled to an output of the storage device to produce a time-delayed representation of the clocked output signal responsive to the clock signal;

(c) a clock generator, coupled to the receiver, for generating the clock signal; and

(d) a processor, coupled to the receiver, for decoding and processing the information.

12. (Original) The communication device of claim 11, further comprising:

a user input device, coupled to the processor, for receiving user information, wherein the processor encodes the user information; and

a transmitter, coupled to the processor and the antenna, for modulating and upconverting the user information into a transmission signal for transmission from the antenna.

13. through 15. (Canceled)

16. (Previously Presented) A communication device comprising:

(a) an antenna for receiving a radio signal bearing information;

(b) a receiver, coupled to the antenna, for down-converting and demodulating the radio signal, the receiver including a sigma-delta converter that includes a feedback loop and operates over a predetermined bandwidth, the sigma-delta converter comprising:

a forward path including:

a summer for generating a first signal;

a filter for averaging the first signal to produce a second signal;

a comparator for comparing the second signal to a reference level and producing a third signal based on the comparison; and

a storage device for storing the third signal for a delay period and outputting the third signal responsive to a clock signal to produce a clocked output signal;

a feedback path providing a representation of the clocked output signal to a negative input of the summer, wherein the summer generates the first signal by subtracting the representation of the clocked output signal from a representation of the radio signal applied to a positive input of the summer; and

at least one instability generator, positioned in at least one of the forward path and the feedback path, for generating an instability in the feedback loop at a frequency outside the predetermined bandwidth to substantially improve signal-to-noise performance of the sigma--delta converter within the predetermined bandwidth for amplitudes of the input signal that are substantially near a low end of a dynamic range of the sigma-delta converter;

wherein the at least one instability generator comprises:

a first D flip-flop responsive to a first edge of the clock signal; and

a second D flip-flop coupled to an output of the first D flip-flop and responsive to a second edge of the clock signal.

(c) a clock generator, coupled to the receiver, for generating the clock signal; and

(d) a processor, coupled to the receiver, for decoding and processing the information.

17. (Canceled)

18. (Previously Presented) A communication device comprising:

(a) an antenna for receiving a radio signal bearing information;

(b) a receiver, coupled to the antenna, for down-converting and demodulating the radio signal, the receiver including a sigma-delta converter that includes a feedback loop, operates over a predetermined bandwidth, and provides a bandpass frequency response, the sigma-delta converter comprising:

a forward path including:

a summer for generating a first signal;

a filter for averaging the first signal to produce a second signal;

a comparator for comparing the second signal to a reference level and producing a third signal based on the comparison; and

a storage device for storing the third signal for a delay period and outputting the third signal responsive to a clock signal to produce a clocked output signal, wherein the storage device comprises:

a first D flip-flop coupled to an output of the comparator and producing an intermediate signal at a non-inverting output responsive to the clock signal; and

a second D flip-flop coupled to the non-inverting output of the first D flip-flop and producing the clocked output signal at an inverting output responsive to the clock signal;

a feedback path providing a representation of the clocked output signal to a negative input of the summer, wherein the summer generates the first signal by subtracting the

representation of the clocked output signal from a representation of the radio signal applied to a positive input of the summer; and

at least one instability generator, positioned in at least one of the forward path and the feedback path, for generating an instability in the feedback loop at a frequency outside the predetermined bandwidth to substantially improve signal-to-noise performance of the sigma-delta converter within the predetermined bandwidth for amplitudes of the input signal that are substantially near a low end of a dynamic range of the sigma-delta converter;

wherein the at least one instability generator comprises at least a third D flip-flop positioned in the forward path of the feedback loop and coupled to the inverting output of the second D flip-flop to produce a time-delayed representation of the clocked output signal responsive to the clock signal;

(c) a clock generator, coupled to the receiver, for generating the clock signal; and

(d) a processor, coupled to the receiver, for decoding and processing the information.